BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Diploma in Engineering Pearson BTEC International Level 3 Diploma in Mechanical Engineering Pearson BTEC International Level 3 Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Extended Diploma in Engineering Pearson BTEC International Level 3 Extended Diploma in Mechanical Engineering Pearson BTEC International Level 3 Extended Diploma in Manufacturing Engineering
Unit number and title	**Unit 42: Manufacturing Primary Forming Processes**
Learning aim(s)	**C:** Investigate the suitability of forming processes to manufacture products using safe working practices
Assignment title	Forming processes
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are working as an apprentice technician with an engineering organisation that carries out the primary forming of components using metallic, ceramic and polymer materials for products that are manufactured in high volumes. Your supervisor has been monitoring your progress and is pleased with your understanding of moulding and deformation processes. She has now asked you to research and investigate a range of forming processes that could be appropriate for manufacturing specific engineering components, and the safety procedures that need to be followed.
Task 1	You have been asked to investigate the suitability/selection of primary forming processes to manufacture different engineering components. You will need to evaluate a range of components to select appropriate processes and justify your decisions using objective criteria. You also need to explain in detail the safe working practices that need to be followed for each process. **To do this:** You first need to carry out some research into safe working practices for a range of primary forming processes. During your research you will need to find out about: • The key features of health and safety regulations, for example COSHH, PPE at Work regulations, Manual Handling and Control

	of Noise Regulations • Risk assessments and methods of risk reduction **You then need to:** Use your research from above and from completing your assignments for Learning aims and A and B, when producing a portfolio of evidence (that includes both written work and diagrams) to evaluate and justify the selection/recommendation of forming processes for three different engineering components, using the objective criteria stated below: • Manufacturing volume or scale of production • Product form, including complexity (low, medium or high), physical dimensions, tolerances and surface finish • Properties of the materials, for example mechanical, electrical, thermal and physical • Constraints, for example budget, time and regulatory • Sustainability throughout the product's lifecycle, carbon footprint and energy usage • the operational environment, for example safety critical, corrosive, temperature, humidity. Make sure you show how the criteria can interrelate when choosing processes and support your judgements with contextual comments related to each component. You should also explain in detail the safe working practices that relate to the primary forming processes selected. You should make reference to hazard identification and classification, methods of risk reduction and the key features of the relevant health and safety regulations.
Checklist of evidence required	A portfolio containing a written commentary and diagrams justifying the selection of forming processes to manufacture a range of products, and about health and safety and risk reduction approaches that apply to the processes. Evidence could also be provided in the form of a PowerPoint presentation.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
42/C.D3	Evaluate, consistently, a range of components, using objective criteria to justify appropriate primary forming processes and explain in detail which safe working practices would apply.
42/C.M3	Analyse a range of components, using objective criteria to recommend appropriate primary forming processes and explain which safe working practices would apply.
42/C.P6	Select, using objective criteria, acceptable primary forming processes to manufacture a range of components and describe which safe working practices would apply.

Sources of information to support you with this Assignment	**Books** Black BJ – Workshop Processes, Practices and Materials, 5th Edition (Routledge, 2015) ISBN 9781138784727. Campbell J - Complete Casting Handbook: Metal Casting Processes,

	Metallurgy, Techniques and Design (Butterworth-Heinemann, 2015) ISBN 9780081001202 Davidi G – Plastic forming processes of composite materials (Scholar's Press, 2013) ISBN 978-3639700848. **Websites** bpf.co.uk/ - British Plastics Federation plasticmoulding.ca/techniques.htm thelibraryofmanufacturing.com/ - Library of Manufacturing. hse.gov.uk/risk/risk-assessment.htm hse.gov.uk/work-equipment-machinery/standard.htm